

What is claimed is:

1. An apparatus for measuring a gap between a mask and a substrate, the apparatus comprising:

5 a laser displacement sensor, which is placed on a mask and a substrate spaced apart from each other by a predetermined gap, emits laser beams while moving onto the mask and the substrate in a horizontal direction and measures a gap between the mask and the substrate using a variation in distance values measured based on light-receiving positions of the laser beams that are reflected
10 from the mask and the substrate and return to their original positions, respectively;

a Z-direction transferring unit, which adjusts a vertical distance (Z-direction distance) between the laser displacement, the mask, and the substrate;

an X-direction transferring unit, which enables the laser displacement sensor to move in a widthwise direction (X direction) on the plane parallel to the mask or the
15 substrate; and

a Y-direction transferring unit, which enables the laser displacement sensor to move in a lengthwise direction (Y direction) on the plane parallel to the mask or the substrate.

20 2. The apparatus of claim 1, wherein an image obtaining unit is connected to the laser displacement sensor so that positions on the mask in which the laser displacement sensor measures the gap between the mask and the substrate are virtually checked.

25 3. The apparatus of claim 2, wherein a display, which indicates an image obtained by the image obtaining unit, is connected to the image obtaining portion.

4. The apparatus of claim 1, further comprising a control unit, which
30 calculates the gap between the mask and the substrate by storing a value output from the laser displacement sensor.

5. The apparatus of claim 1, wherein a plurality of laser displacement

sensors are provided so that a gap between the mask and the substrate is simultaneously measured at several positions.

6. A method of measuring a gap between a mask and a substrate, the method comprising:

moving a laser displacement sensor to a predetermined position on a mask and a substrate spaced apart from each other by a predetermined gap;

adjusting a vertical distance between the mask or the substrate and the laser displacement sensor so as to match an operating distance of the laser displacement sensor;

emitting laser beams on an upper surface of the substrate by passing the mask, and measuring a first distance value based on light-receiving positions of the laser beams that are reflected from the upper surface of the substrate and return to their original positions, using the laser displacement sensor;

emitting laser beams on a mask pattern placed on a lower surface of the mask and measuring a second distance value based on light-receiving positions of the laser beams that are reflected from the mask pattern and return to their original positions, using the laser displacement sensor; and

determining the gap between the mask and the substrate using a difference between the first distance value and the second distance value.